



Tecnológico
de Monterrey



Low Income Firms
Transformation Lab

MIT LIFT LAB PROJECT: Impulsive Purchase Behavior and Consumer Preferences Analysis



ALEJANDRO CASTRO VALENZUELA
INDUSTRIAL AND SYSTEMS ENGINEERING





+1 million
nanostores

Directorio Estadístico Nacional de Unidades Económicas (DENUE), INEGI, 2025.

6 million
people depend on
nanostores

DataMexico, 2025-T1.

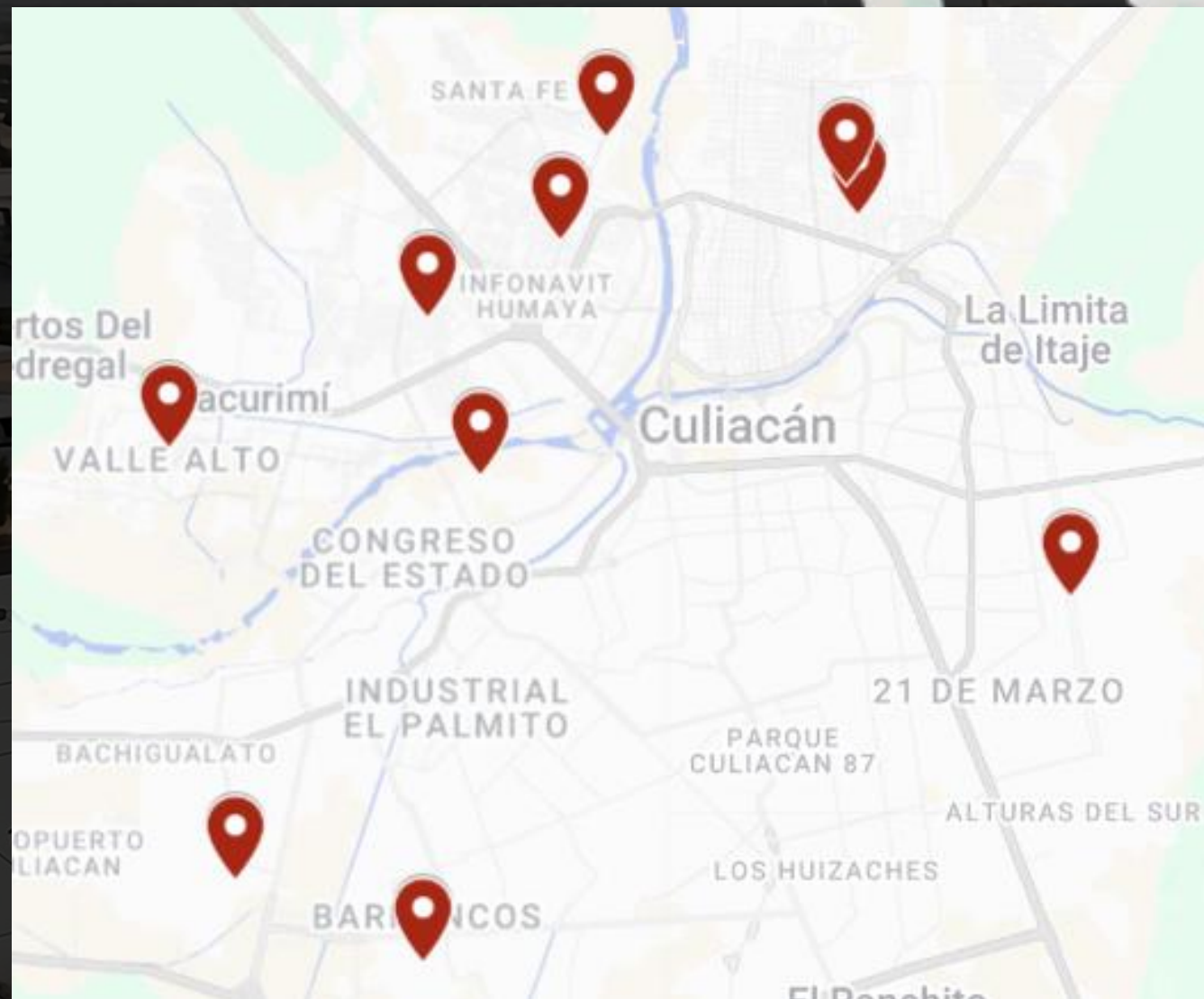
37%
of total expenses in
nanostores

Banco de México, 2023.

20%
of all SMEs in Mexico.

Directorio Estadístico Nacional de Unidades Económicas (DENUE), INEGI, 2025.

Area of study



Culiacán, Sinaloa



SURVEYS APPLICATION

- Subjects were selected randomly
- Surveys were applied nationwide by Tec campuses
- Nanostores in Culiacán were selected
- In-person interviews were conducted
- Data was integrated into a national database

DATA BASE

Shopper:

Original rows: 1317

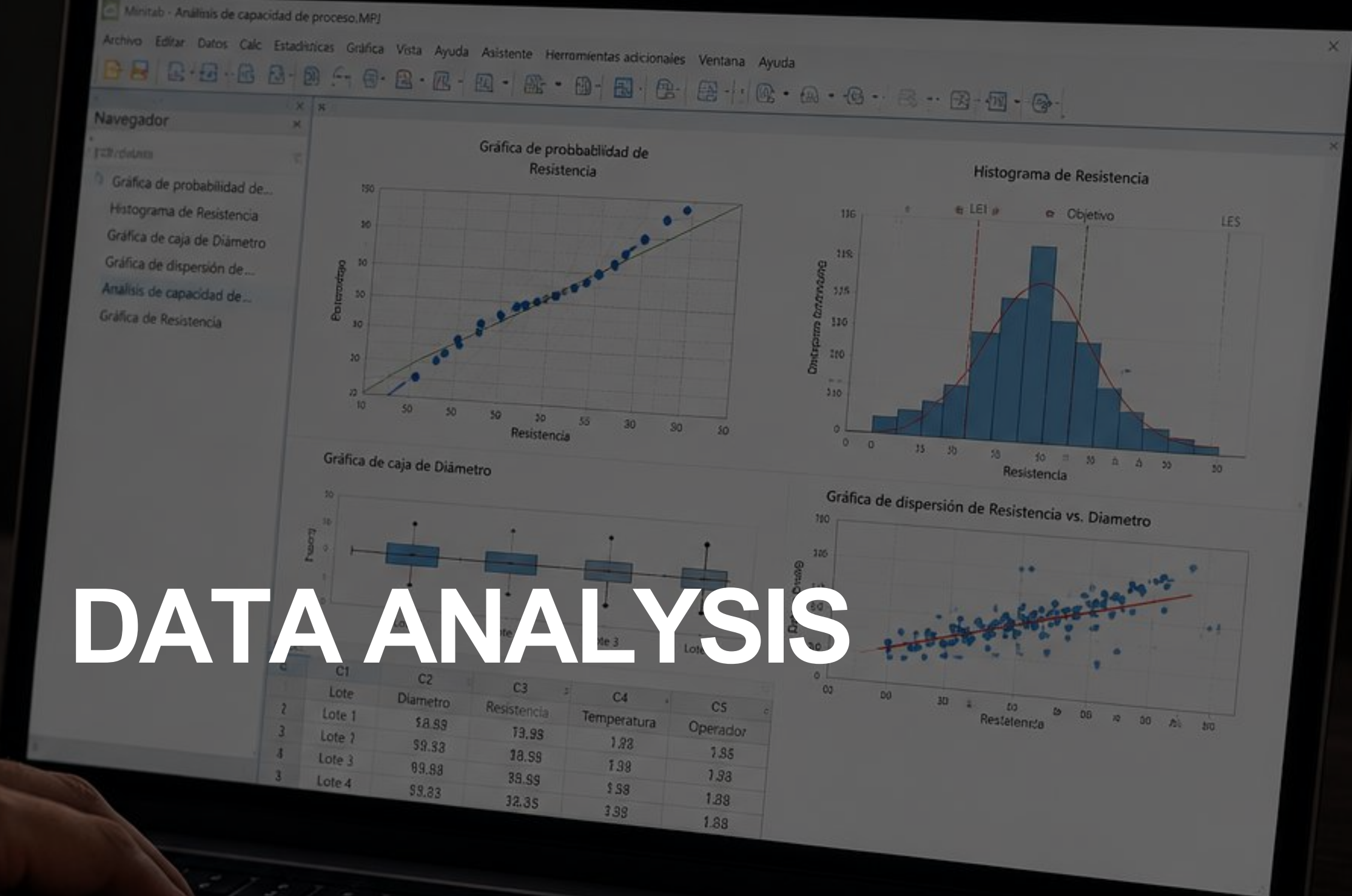
Final rows: 1058

Shopkeeper:

Original rows: 401

Final rows: 155

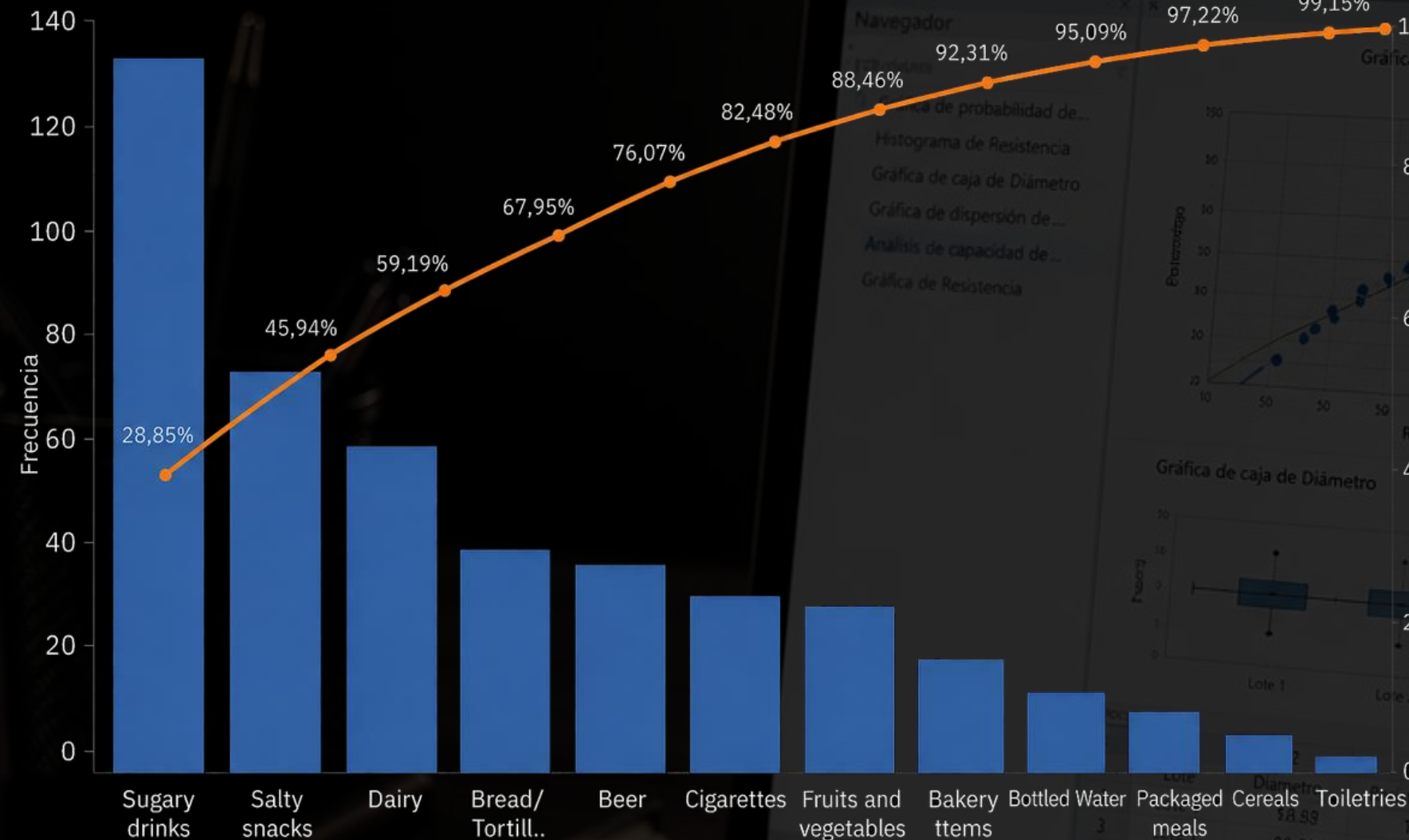
DATA ANALYSIS



MIGUEL ANGEL FIGUEROA SANCHEZ
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Products Sells



Top 3 most sold products:

- Sugary drinks (28.85%)
- Salty snacks (17.09%)
- Dairy (13.25%)

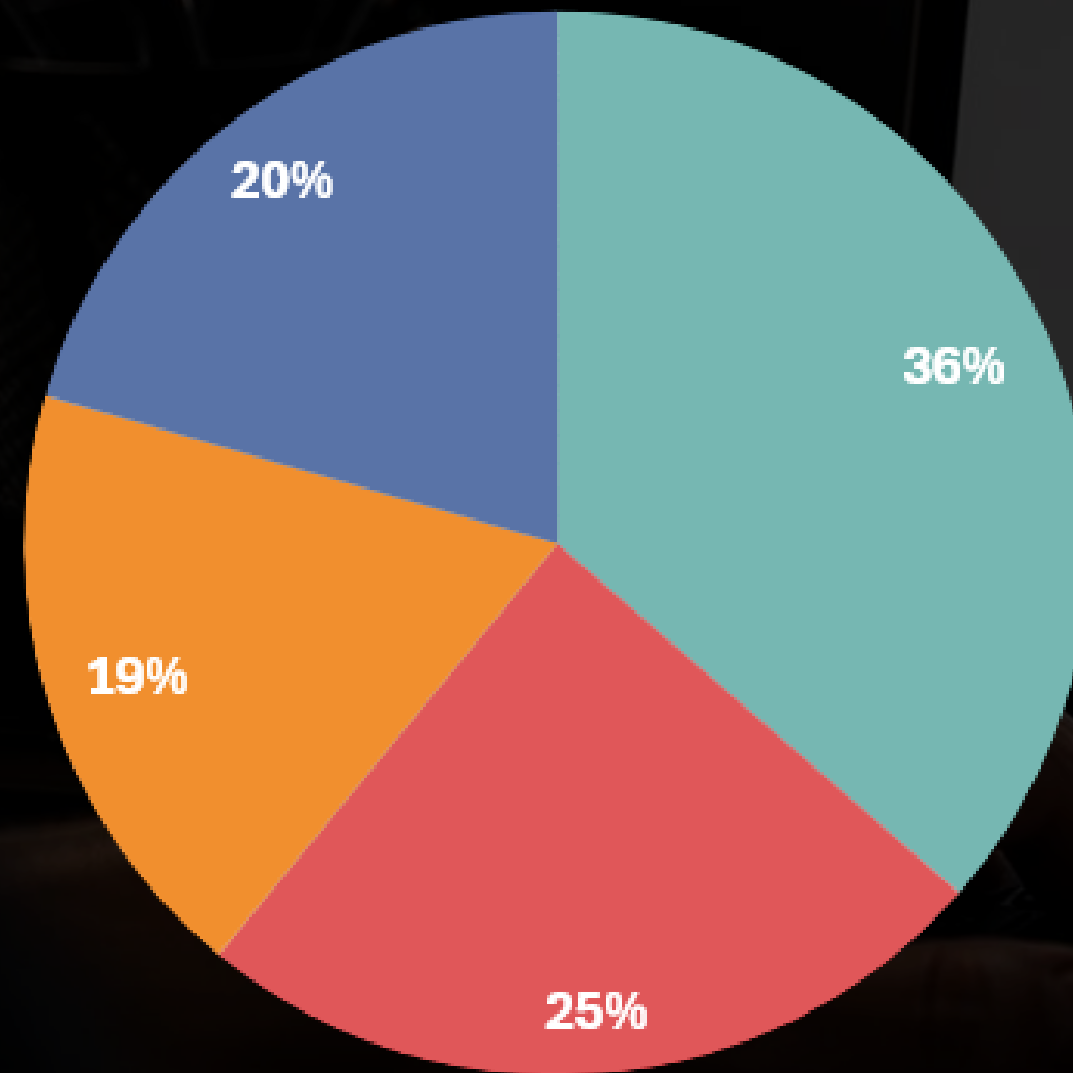
The top 4 least healthy items represent more than 50% of the sales in nanostores.

Clients most common purchases are items they perceive as unhealthy.

Healthy Products Perception



Priority when Buying a Product



Perception of healthy products prices

Price Comparison

Much higher

29%

Slightly higher

37%

About the same

26%

Slightly lower

5%

Much lower

3%

36% of the clients choose their products by price.

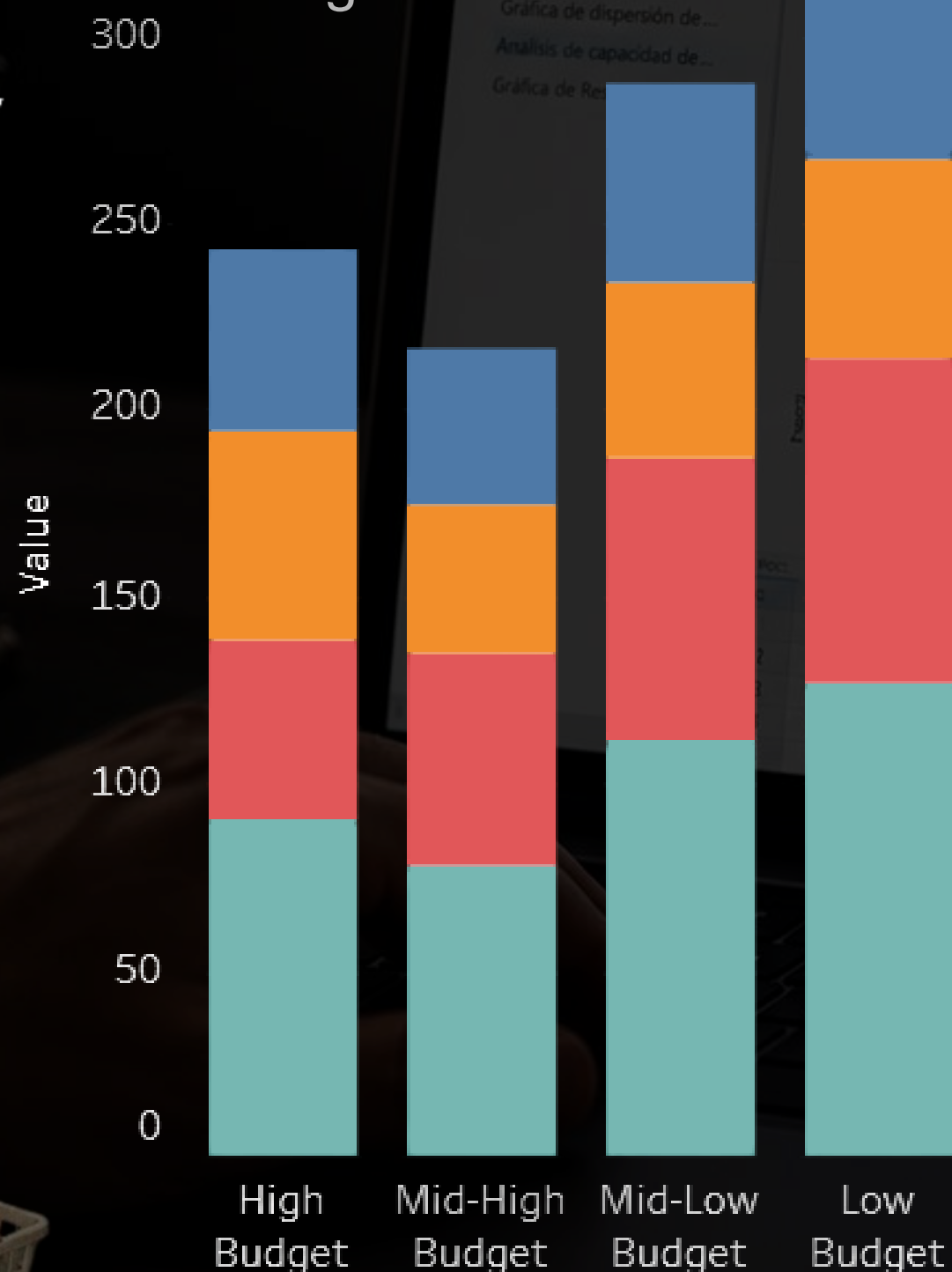
Health is the lowest factor clients consider when choosing products with only 19%.

66% of clients perceive healthy products as slightly or much more expensive.

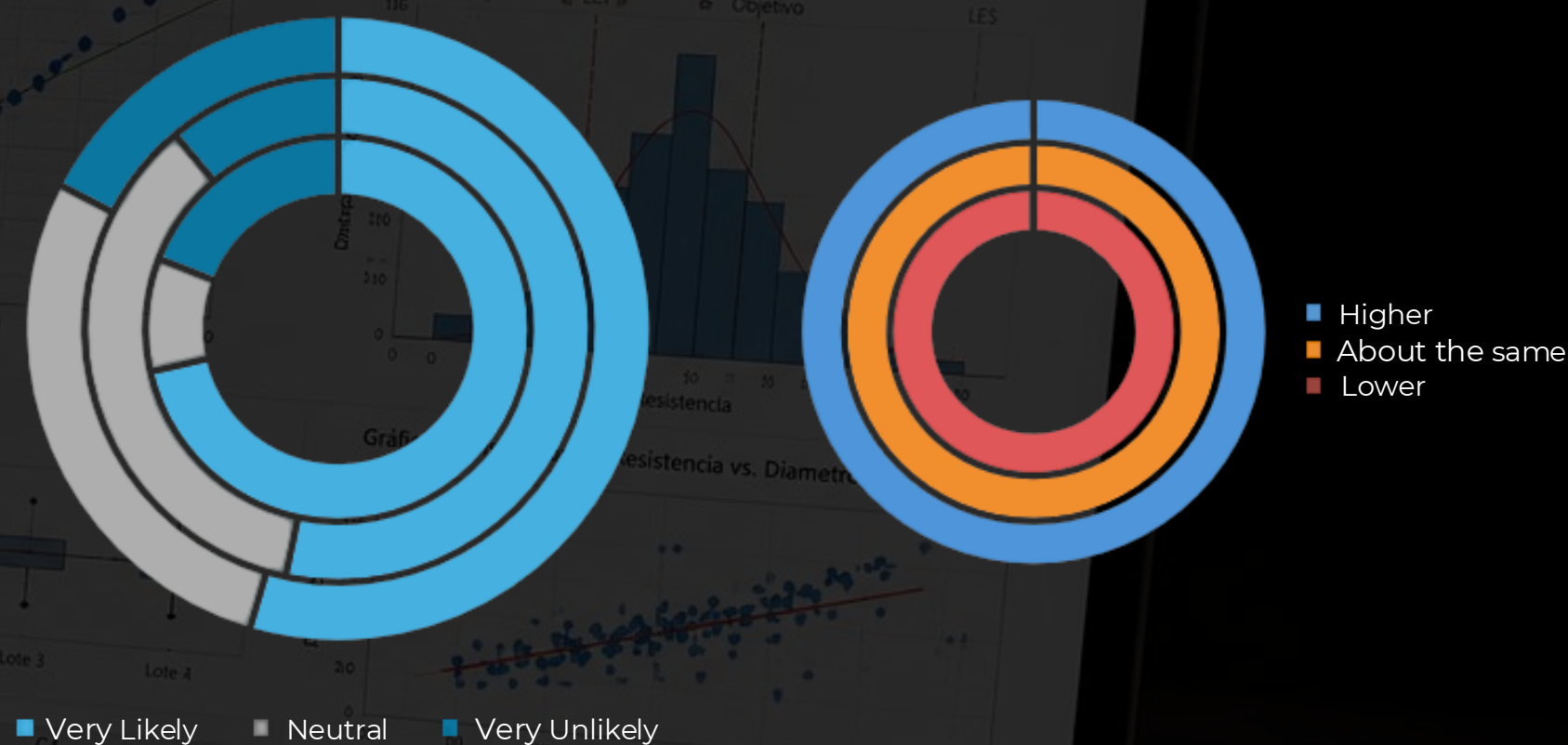


Health Priority

- High Health Priority
- Highest Health Priority
- Low Health Priority
- Lowest Health Priority



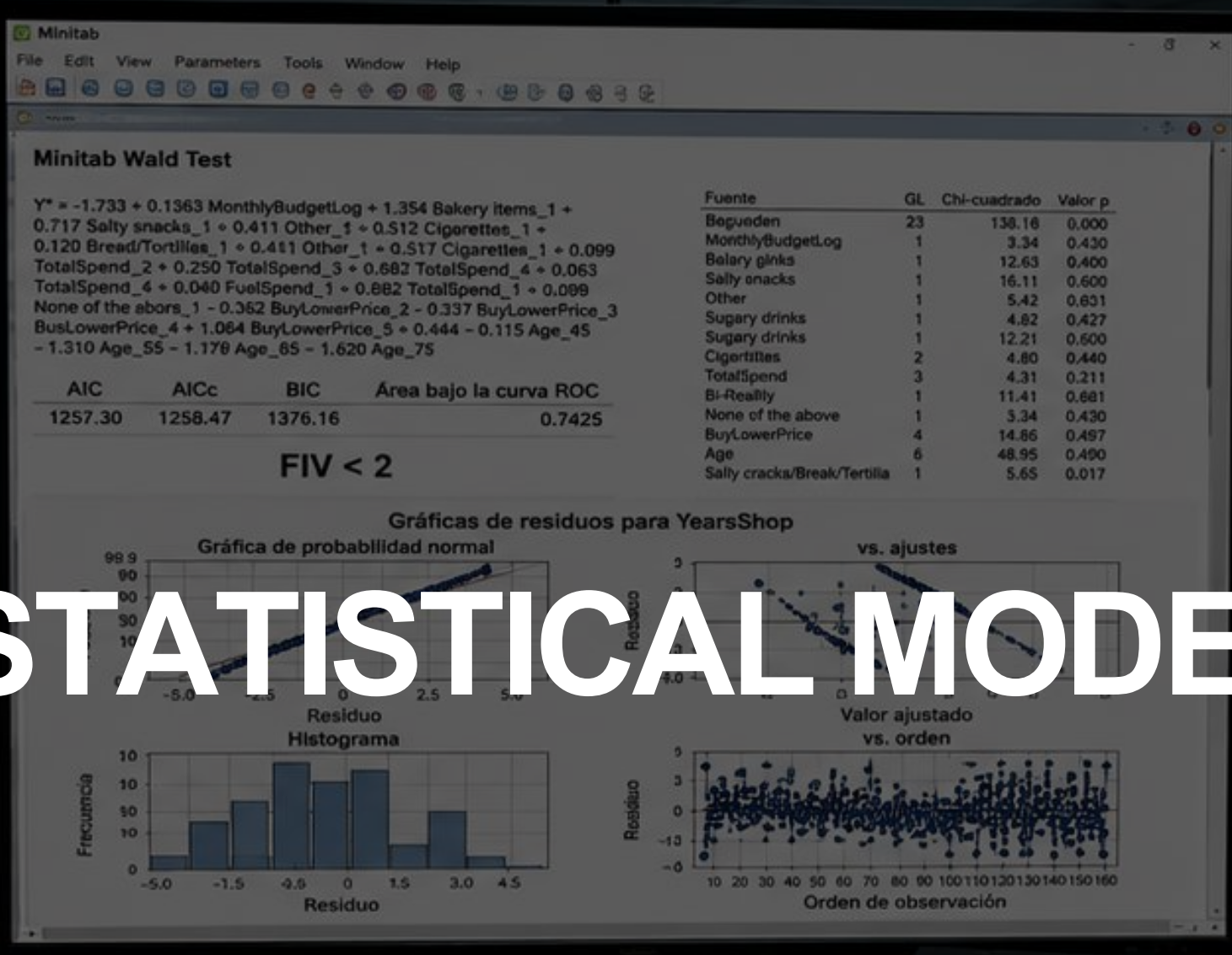
Healthier Version Likelihood / Perception Healthy Prices



The majority of clients would buy a healthier option if it has a similar price.

Consumers across all budget groups show interest in healthier alternatives, but lower-income consumers face stronger economic limitations.

STATISTICAL MODEL



MANUEL BRITO BON
INDUSTRIAL AND SYSTEMS ENGINEERING



SHOPPER MODEL

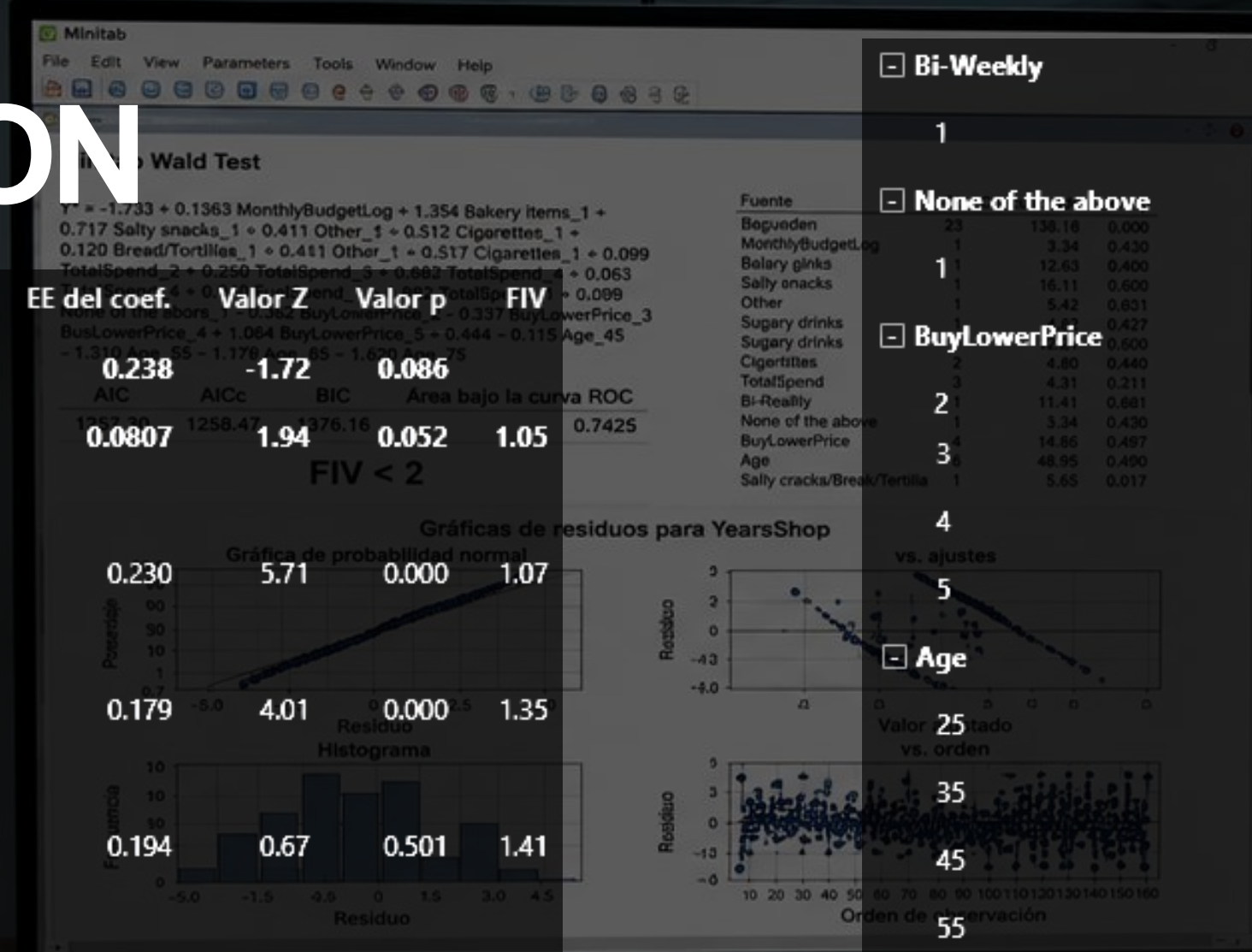
Y: ImpulsePurchase

$$P(1) = \exp(Y') / (1 + \exp(Y'))$$

$$Y' = -1.733 + 0.1565 \text{ MonthlyBudgetLog} + \mathbf{1.314 \text{ Bakery items}_1} + 0.717 \text{ Salty snacks}_1 + 0.130 \text{ Bread/Tortillas}_1 + 0.411 \text{ Other}_1 + 0.513 \text{ Sugary drinks}_1 + 0.537 \text{ Cigarettes}_1 + 0.098 \text{ TotalSpend}_2 + 0.250 \text{ TotalSpend}_3 + 0.602 \text{ TotalSpend}_4 + 0.868 \text{ Bi-Weekly}_1 + 0.483 \text{ None of the above}_1 - 0.363 \text{ BuyLowerPrice}_2 - 0.537 \text{ BuyLowerPrice}_3 - 0.039 \text{ BuyLowerPrice}_4 - \mathbf{1.088 \text{ BuyLowerPrice}_5} - 0.444 \text{ Age}_{25} - \mathbf{1.208 \text{ Age}_{35}} - 0.919 \text{ Age}_{45} - \mathbf{1.310 \text{ Age}_{55}} - 1.179 \text{ Age}_{65} - 1.620 \text{ Age}_{75} + 1.058 \text{ Salty snacks} * \text{Bread/Tortillas}_1$$

MODEL VALIDATION

Término	Coef	EE del coef.	Valor Z	Valor p	FIV
Constante	-0.409	0.238	-1.72	0.086	
MonthlyBudgetLog	0.1565	0.0807	1.94	0.052	1.05
☐ Bakery items					
1	1.314				
☐ Salty snacks					
1	0.717				
☐ Bread/Tortillas					
1	0.130				
☐ Other					
1	0.411				
☐ Cigarettes					
1	0.537	0.268	2.01	0.045	1.10
☐ TotalSpend					
2	0.098	0.171	0.58	0.565	1.33
3	0.250	0.210	1.19	0.234	1.33
4	0.602	0.299	2.01	0.044	1.31



0.868	0.257	3.38	0.001	1.03
0.483	0.252	1.91	0.056	1.08
-0.363	0.169	-2.15	0.032	1.28
-0.537	0.217	-2.47	0.014	1.21
-0.039	0.242	-0.16	0.873	1.19
-1.088	0.389	-2.80	0.005	1.08
-0.444	0.220	-2.02	0.043	1.98
-1.208	0.258	-4.68	0.000	1.71
-0.919	0.246	-3.74	0.000	1.86
-1.310	0.285	-4.59	0.000	1.61
-1.179	0.298	-3.96	0.000	1.50
-1.620	0.488	-3.32	0.001	1.17
1.058	0.443	2.39	0.017	1.39

AUC ROC
0.7425

VIF < 2



AbarroteTech

PROPOSAL

DIEGO DE JESÚS ROMERO LÓPEZ
INDUSTRIAL AND SYSTEMS ENGINEERING





AbarroteTech

Inicia sesión en tu punto de venta

ID de Sucursal

17

Contraseña

.....

Entrar al Sistema

¿No tienes una sucursal? [Regístrala aquí](#)

LOG IN



AbarroteTech

Registra una nueva sucursal

Nombre Tienda

Encargado

Dirección

Ciudad

Estado

Contraseña

Crear Sucursal

REGISTER

HOME SCREEN /
SALES SCREEN

AbarroteTech

Sucursal: 17

Nueva Venta

Dashboard

Historial de Ventas

Clientes (CRM)

Cerrar Sesión

Punto de Venta

00:00

Iniciar Nueva Venta

AbarroteTech

Sucursal: 17

Nueva Venta

Dashboard

Historial de Ventas

Cientes (CRM)

Cerrar Sesión

Punto de Venta

00:16

Asociar Cliente

Jared

Cambiar

Agregar Producto

Nombre del producto

Categoría...

1

Precio \$

Añadir a Ticket

Ticket de Compra

1x Sabritas

Botanas Saladas

\$29.00

Total a Pagar:

\$29.00

Cobrar Venta y Analizar

Cancelar Operación

SMART PURCHASE ANALYSIS

¡Cobrado! IA Predictiva: Compra Planeada (23.73%)

AI SALES INSIGHTS

AbarroteTech

Sucursal: 17

Nueva Venta

Dashboard

Historial de Ventas

Cientes (CRM)

Cerrar Sesión

Dashboard de Resultados

Actualizar Datos

INGRESOS TOTALES

\$147.00

TICKETS VENDIDOS

6 ventas

TICKET PROMEDIO

\$24.50

Inteligencia de Negocios (IA)

Ventas por Impulso (1)

Ventas Planeadas (5)

17%

83%

17%

TASA DE IMPULSO

83%

TASA PLANEADA

Top 5 Productos Más Vendidos

#1

Galletas Emperador

98 unid.

#2

Jaztea

45 unid.

#3

Chips lilas

40 unid.

#4

Sabritas

3 unid.

#5

Chicharrones

2 unid.

AbarroteTech

Sucursal: 17

Nueva Venta

Dashboard

Historial de Ventas

Cientes (CRM)

Cerrar Sesión

Historial y Análisis IA

Refrescar

Folio	Fecha	Artículos	Total	Predicción IA
#13	5/25/2026, 11:07:24 PM	1 prod.	\$29.00	Planeado (23.73%)
#10	5/25/2026, 3:11:53 PM	2 prod.	\$40.00	Planeado (49.17%)
#6	5/25/2026, 1:22:33 PM	1 prod.	\$78.00	Planeado (23.73%)
#5	5/25/2026, 1:16:13 PM	1 prod.	\$0.00	Planeado (24.01%)
#3	5/25/2026, 1:06:14 PM	2 prod.	\$0.00	Planeado (25.55%)
#1	5/25/2026, 12:43:47 PM	2 prod.	\$0.00	Impulso (54.69%)

SALES HISTORY & AI ANALYSIS

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Sucursal: 17

Nueva Venta

Dashboard

Historial de Ventas

Cientes (CRM)

Cerrar Sesión

+ Nuevo Cliente

Nombre Completo

Edad

Variables del Modelo IA

Presupuesto Mensual Aprox. (\$)

Ej. 15000

Sensibilidad Ofertas (1=Poca, 5=Mucha)

3

Registrar Cliente

Directorio CRM

Cód	Nombre	Edad	Presupuesto	Sensibilidad
001	Pato	17 años	\$10,000	Nivel 3
EXP-6640	Valeria Montoya	20 años	\$3,162	Nivel 3
5	Jared	20 años	\$199,986	Nivel 3
CL-46973	Diego Romero	20 años	\$11,998	Nivel 3
CL-68952	Fetu	6 años	\$1,000,000	Nivel 5
CL-80123	Doctor Ivan Pacheco	26 años	\$40,004	Nivel 4

CUSTOMER DASHBOARD

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Table Editor

schema public

+ New table

Search tables...

clientes UNRESTRICTED

tiendas UNRESTRICTED

ventas UNRESTRICTED

public.tiendas

public.ventas

public.clientes

+

Filter by id_cliente, codigo, nombre_completo... or ask AI

Sort

RLS disabled

Role postgres

	id_cliente	codigo	nombre_completo	edad	presupuesto_mensual_log	sensibilidad_precio	
	1	001	Pato	17	4	3	
	2	EXP-6640	Valeria Montoya	20	3.5	3	
	3	5	Jared	20	5.301	3	
	4	CL-46973	Diego Romero	20	4.0791	3	
	5	CL-68952	Fetu	6	6	5	
	6	CL-80123	Doctor Ivan Pacheco	26	4.6021	4	

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Table Editor

schema public

+ New table

Search tables...

clientes UNRESTRICTED

tiendas UNRESTRICTED

ventas UNRESTRICTED

public.tiendas

public.ventas

public.clientes

+

Filter by id_tienda, nombre, direccion_fisica... or ask AI

Sort

RLS disabled

Role postgres

⋮

↺

↻

Insert

	id_tienda	nombre	direccion_fisica	ciudad	estado	latitud	longitud	estatus_operativo
	17	Abarrote Olivos	Calle Olivos 1191	Culiacán	Sinaloa	0	0	Activa
	18	Dog	Dog 1 Colonia	Culiacán	Sinaloa	0	0	Activa
	19	Alejandro abarrote	80107	culiacan	Sinaloa	0	0	Activa

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Table Editor

schema public

+ New table

Search tables...

clientes UNRESTRICTED

tiendas UNRESTRICTED

ventas UNRESTRICTED

public.tiendas

public.ventas

public.clientes

+

Filter by id, productos, edad_cliente... or ask AI

Sort

RLS disabled

Role postgres

⋮

↺

↻

Insert

	id	productos	edad_cliente	inicio_venta	fin_venta	tiempo_venta_segundos	created_at	id_tienda
	1	[{"cantidad":40,"producto":"Chips lilas","categoria":	NULL	2026-05-25 19:43:18.024+00	2026-05-25 19:43:47.386+00	29	2026-05-25 19:43:47.167823+00	17
	2	[{"cantidad":1,"producto":"Coca cola","categoria":"Be	NULL	2026-05-25 19:46:02.587+00	2026-05-25 19:47:09.947+00	67	2026-05-25 19:47:09.578416+00	18
	3	[{"cantidad":2,"producto":"Sabritas","categoria":"Bo	NULL	2026-05-25 20:05:28.03+00	2026-05-25 20:06:14.058+00	46	2026-05-25 20:06:14.289097+00	17
	4	[{"cantidad":1,"producto":"Te verdi","categoria":"Bebic	NULL	2026-05-25 20:10:27.295+00	2026-05-25 20:11:20.7+00	53	2026-05-25 20:11:21.119278+00	18
	5	[{"cantidad":98,"producto":"Galletas Emperador","c	NULL	2026-05-25 20:15:49.118+00	2026-05-25 20:16:13.644+00	24	2026-05-25 20:16:13.986033+00	17
	6	[{"precio":39,"cantidad":2,"producto":"Chicharrones	NULL	2026-05-25 20:22:09.012+00	2026-05-25 20:22:33.772+00	24	2026-05-25 20:22:33.993813+00	17
	7	[{"precio":35,"cantidad":2,"producto":"Condoness","c	NULL	2026-05-25 20:24:43.3+00	2026-05-25 20:26:27.822+00	104	2026-05-25 20:26:26.624003+00	18
	8	[{"precio":25,"cantidad":1,"producto":"Coca","categor	NULL	2026-05-25 20:26:34.452+00	2026-05-25 20:27:44.87+00	70	2026-05-25 20:27:43.52974+00	18
	9	[{"precio":25,"cantidad":1,"producto":"Te Jaztea","cate	NULL	2026-05-25 20:41:41.186+00	2026-05-25 20:42:40.602+00	59	2026-05-25 20:42:40.609083+00	18
	10	[{"precio":20,"cantidad":1,"producto":"Cigarros","cate	NULL	2026-05-25 22:11:20.975+00	2026-05-25 22:11:53.006+00	32	2026-05-25 22:11:53.289973+00	17
	11	[{"precio":30,"cantidad":5,"producto":"Chips","cate	NULL	2026-05-26 01:37:19.194+00	2026-05-26 01:38:38.446+00	79	2026-05-26 01:38:38.547297+00	19
	12	[{"precio":30,"cantidad":40,"producto":"chips","cate	NULL	2026-05-26 01:39:02.04+00	2026-05-26 01:39:27.177+00	25	2026-05-26 01:39:26.911443+00	19
	13	[{"precio":29,"cantidad":1,"producto":"Sabritas","cate	NULL	2026-05-26 06:06:58.195+00	2026-05-26 06:07:25.573+00	27	2026-05-26 06:07:24.791028+00	17

DATABASE RECORDS

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Note on the use of Artificial Intelligence: Some of the images in this material were generated using Artificial Intelligence technology (Gemini). These illustrations are for conceptual visualization purposes only and do not depict real situations or individuals.



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